geographically non-random distribution and is more likely to occur where *W. lepida* is present than when it is not. We found that the fitness of *D. pulchra* increases with decreasing distance from *W. lepida* and that, controlling for direction and distance from *W. lepida*, there was an overall decrease in pollination with increasing distance from *W. lepida*. These results highlight the dependency of a Batesian mimic on its model and suggest that fitness and population expansion of *D. pulchra* is constrained by its reliance on *W. lepida*.

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The effects of range margin proximity and life-history on dispersal ability in southern African Asteraceae

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As future climatic conditions change, dispersal may enable species to track their shifting climatic envelopes. Therefore it is of particular interest to investigate populations that occur on range margins, because individuals in these populations will make the first 'advances' during a climate-forced migration. However, it will also be these populations that could be most sensitive to severe climatic changes and range contractions. In addition, several studies suggest that the dispersal ability of a species may be linked to its life-history traits, and therefore annual and perennial species may experience different marginal effects. Here we investigate dispersability of southern African Asteraceae in populations at their range margins in comparison to populations at the centre of distribution ranges. We also compare the capacity for dispersal between annual species and their closely related perennial counterparts. We collected mature fruits from numerous Asteraceae species across their distribution ranges in the Greater Cape Floristic Region. Dispersal traits (wing load and fall time) were measured for representative marginal and central populations. Preliminary results suggest significant variation in dispersal capacity among populations within species across their geographic ranges. Geographic patterns of variation in dispersal traits are not consistent between species, which suggests that responses to climate-forced range shifts may differ between taxa. Life-history strategies also have variable effects on dispersal ability within genera. In general, perennials have intermediate to high dispersal abilities compared to annuals. The results of this study will be especially significant in the face of range loss induced by climate change predicted for both generalist species with large geographic ranges (such as many Asteraceae) and narrow-range endemics in the Greater Cape Floristic Region.

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Self-pollination and pollen limitation in the Cape Flora

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Inadequate cross pollination has been invoked to explain pollinator shifts of plants, and hence pollinator driven speciation, in the Cape Flora. However, limitation of fecundity by pollen receipt (pollen limitation) has been poorly documented in the Cape Flora. Ability to self-pollinate, which reduces dependence on pollinators, is also poorly known in this region. We document the frequencies of pollen limitation and ability to self-fertilise in the Cape Flora from our own community level surveys and from the literature, in order to evaluate support for the idea that unusually high pollen limitation is a contributing factor to the high plant diversity of the Cape.

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Sexual mimicry in sympatric orchid species promotes outcrossing, multiple paternity and reproductive isolation

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Most flowering plants engage animals to carry out the essential service of pollination. The majority of these plants have evolved flowers that advertise rewards for this service via visual and chemical cues such as petals and scent. There are however a number of species whose false advertisements draw pollinators to reward-less flowers. Among them are the sexually deceptive orchids which employ a precise chemical mimicry of female wasp sex pheromones to attract male wasps for pollination. This multidisciplinary study examines the consequences of sexual deception in the mating patterns of two sympatric Australian orchids. We show through behavioural and population genetic analysis that the chemical mimicry crucial to sexual deception is also responsible for almost exclusive pre-pollination reproductive isolation and potentially even speciation. We also report paternity and mating system analysis that demonstrates that sexual deception results in near exclusive out-crossing despite clonality as well as multiple paternity-a rarity for orchids. In addition, innovative studies of wasp behaviour provide another line of evidence to show that this pollination strategy is a superbly adaptive solution to the problem flowers face of simulta-neously attracting pollinators and persuading them to leave quickly.

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Potential for speciation through hybridization in Rhodohypoxis a Drakensberg near-endemic

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Hybridisation is not uncommon in nature and may have many evolutionary effects including greater genetic diversity and potential for adaptation to new environments. The ability of hybrids to remain distinct or in distinct ecological zones suggests that speciation may be an outcome. The species of *Rhodohypoxis* (Hypoxidaceae), a Drakensberg near-endemic, readily hybridise with each other and with certain Hypoxis species. To answer the question as to whether there is potential for speciation via hybridization in *Rhodohypoxis*, a study comparing the success rates of cross pollination within and between species was set up. Two grassland species, *R. milloides*, growing in a marsh, and *R. baurii* var. *platypetala*, occurring on an adjacent dry, rocky outcrop, were investigated on Mt. Mawahqua near Underberg, KwaZulu-Natal, where morphological intermediates were noted to occur. Pollinator exclusion bags were used on buds that underwent one of the following treatments: manual cross-pollination, emasculation, selfing or combinations thereof. Results indicate that there is no difference in seed set within and between species. The high population density and shorter, more intense